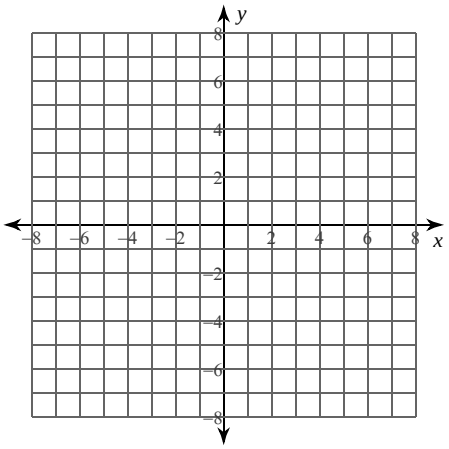
Graphing parabolas Name_____

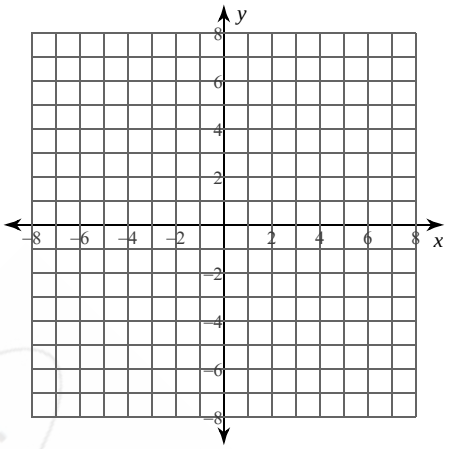
Date_____

Identify the vertex, focus, axis of symmetry, and directrix of each. Then sketch the graph.

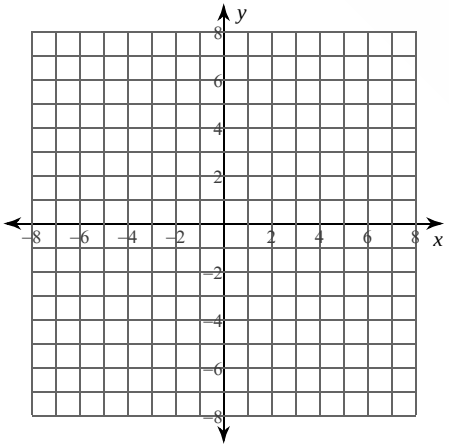
1) $x = -\frac{1}{2}y^2$



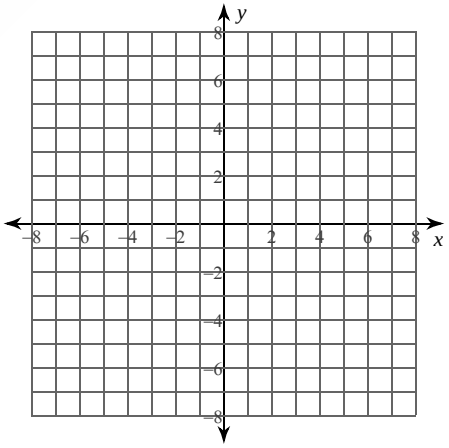
2) $x = \frac{1}{3}y^2$



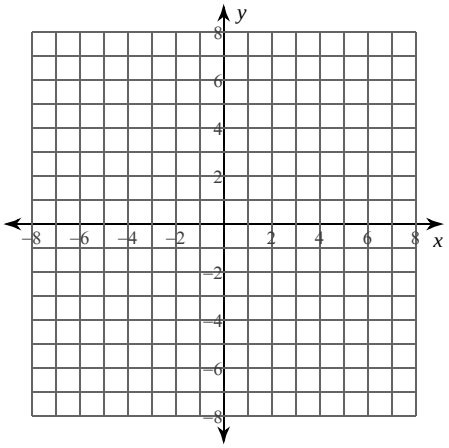
3) $y = x^2$



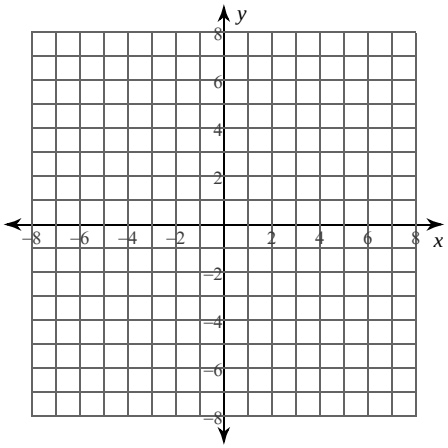
4) $x = -y^2$



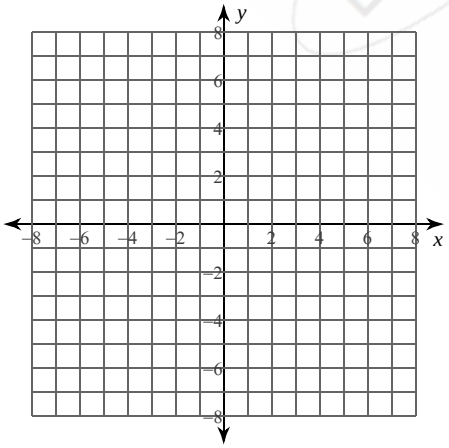
5) $y = -\frac{1}{3}x^2 - \frac{8}{3}x - \frac{22}{3}$



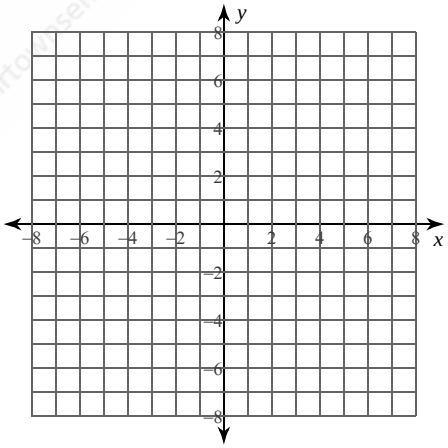
6) $y = -x^2 - 8x - 20$



7) $y = -x^2 + 4x - 5$

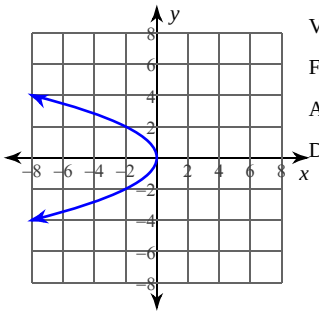


8) $y = -x^2 - 8x - 18$



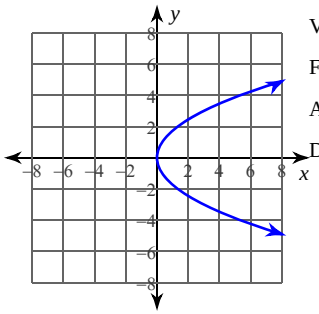
Answers to

1)



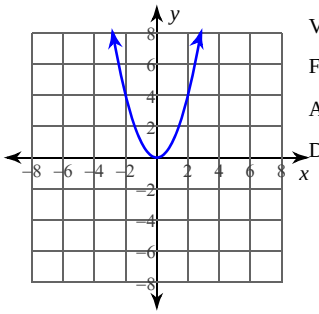
Vertex: $(0, 0)$
Focus: $\left(-\frac{1}{2}, 0\right)$
Axis of Sym.: $y = 0$
Directrix: $x = \frac{1}{2}$

2)



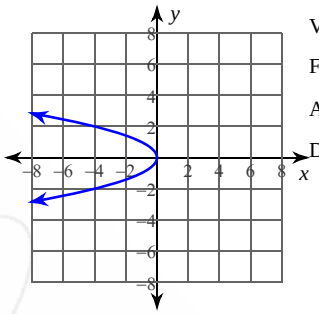
Vertex: $(0, 0)$
Focus: $\left(\frac{3}{4}, 0\right)$
Axis of Sym.: $y = 0$
Directrix: $x = -\frac{3}{4}$

3)



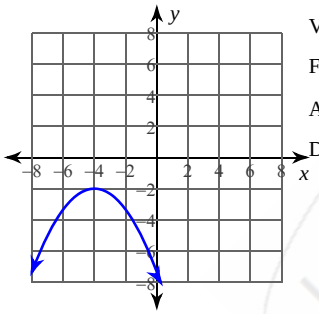
Vertex: $(0, 0)$
Focus: $\left(0, \frac{1}{4}\right)$
Axis of Sym.: $x = 0$
Directrix: $y = -\frac{1}{4}$

4)



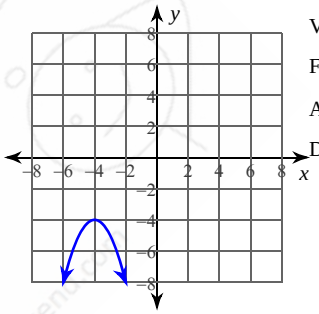
Vertex: $(0, 0)$
Focus: $\left(-\frac{1}{4}, 0\right)$
Axis of Sym.: $y = 0$
Directrix: $x = \frac{1}{4}$

5)



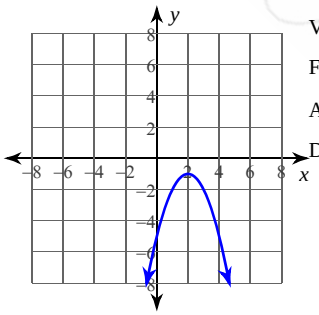
Vertex: $(-4, -2)$
Focus: $\left(-4, -\frac{11}{4}\right)$
Axis of Sym.: $x = -4$
Directrix: $y = -\frac{5}{4}$

6)



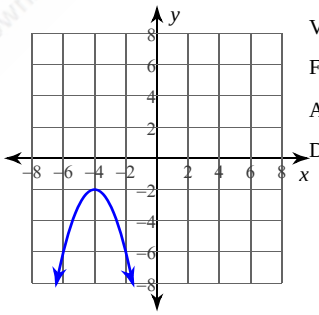
Vertex: $(-4, -4)$
Focus: $\left(-4, -\frac{17}{4}\right)$
Axis of Sym.: $x = -4$
Directrix: $y = -\frac{15}{4}$

7)



Vertex: $(2, -1)$
Focus: $\left(2, -\frac{5}{4}\right)$
Axis of Sym.: $x = 2$
Directrix: $y = -\frac{3}{4}$

8)



Vertex: $(-4, -2)$
Focus: $\left(-4, -\frac{9}{4}\right)$
Axis of Sym.: $x = -4$
Directrix: $y = -\frac{7}{4}$